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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,539	02/25/2002	Akira Kagoshima	500.41253X00	8273

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EXAMINER

MOORE, KARLA A

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 05/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/080,539

Applicant(s)

Kagoshima et al.

Examiner

Karla Moore

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objecti ns

1. Claim 8 is objected to because of the following informalities: Claim 8 refers to the "integrated measuring instrument" as "said metrology", unlike all other claims. Appropriate correction is requested.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0155629 to Fairbairn et al. in view of U.S. Patent No. 6,106,659 to Spence et al. and U.S. Patent No. 5,769,952 to Komino.

4. Fairbairn et al. disclose a semiconductor manufacturing apparatus and method substantially as claimed in Figures 9A-C and comprising: an integrated measuring instrument (906A) for measuring the form or size of an element to be formed into a wafer; an etching unit (902) for etching said wafer; an ashing unit (909) for ashing said etched wafer; a wetting unit (911) for wetting said etched wafer; a transport means (904 and 907) whereby the wafers introduced into a cassette (908) are transported one by one successively to said integrated monitoring instrument and each of said working units; and a transport chamber (multiple part numbers--903, 907 and 909) in which said integrated measuring instrument , etching unit, ashing unit, wetting unit and transport means are connected by a depressurizable transport passage (paragraph 55), and which is provided with a wafer cassette inlet (located where cassettes 908 are attached to the transport chamber) for receiving a cassette containing a plural number of sheets of wafer to be etched.

5. With respect to claims 2 and 3, Fairbairn et al. teach that the integrated measuring instrument of the apparatus is capable of using reflectometry techniques (paragraphs 34 and 35). Because claims 2 and 3 are drawn to a method of using the integrated measuring technique, the Examiner notes that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

6. With respect to claims 4 and 5, said transport means is capable of transporting the wafers introduced into a wafer cassette one by one continuously to said integrated measuring unit and each working unit i.e. the transport means is capable of transporting the wafers individually. Again, because similar to claims 2 and 3, claims 4 and 5 fail to recite any significant structural limitations, the Examiner notes that the courts have ruled that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

7. With respect to claim 6, Fairbairn further teach a method of using the apparatus described above as recited.

8. With respect to claim 7, after part of the wafers contained in the cassette have been finished with the treating process, the remaining wafers in said cassette are transported successively to said integrated measuring instrument and each treating unit by said transport means (see Figure 10).

9. With respect to claims 8-11 and 14, said integrated measuring instrument may be used either pre- or post-treatment and may be used to make optimal control of the etching means based on the measurements made (paragraph 64). With respect to claim 11, the integrated

measuring tool makes a decision whether or not to continue using the same etch recipe or to stop using the current recipe and choose another which is more suitable.

10. However, Fairbairn et al. fail to teach the etching unit as generating plasma under a reduced pressure.

11. Spence et al. teach that by operating in the moderate, rough-vacuum pressure range, plasma treater systems can be used (a) to treat substrates in an efficient cost-effective manner and (b) to produce treated substrates having superior surface properties as compared to those generated using prior-art systems, such as corona-type discharge systems operating at either low pressures (i.e. < 1 Torr) or high pressures (abstract).

12. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plasma treater system at a vacuum in Fairbairn et al. in order to treat substrates in an efficient, cost-effective manner and produce treated substrates having superior surface properties as compared to prior-art systems as taught by Spence et al.

13. Fairbairn et al. also fail to teach a drying chamber as part of the semiconductor manufacturing apparatus.

14. Komino teach the use of a drying apparatus in semiconductor manufacturing systems for the purpose of drying a treatment object after it has been cleaned (column 6, rows 7-22).

15. It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have provided a drying chamber in Fairbairn et al. in order to dry substrates after wet processing as taught by Komino.

16. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn et al., Spence et al. and Komino as applied to claims 1-11 and 14 above, and further in view of U.S. Patent No. 6,264,748 to Kuriki et al.

17. The prior art discloses the invention substantially as claimed and as described above.

18. However, the prior art fails to teach the wafer being transported to the to the ashing means antecedently to the wetting means.

19. Kuriki et al. teach using wet processing chamber after ashing processing for the purpose of removing any remaining coating or resist (column 13, rows 45-51).

20. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have wet processed a substrate after an ashing treatment in the prior art to remove any residual coating or resist as taught by Kuriki et al.

21. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable Fairbairn et al., Spence et al. and Komino as applied to claims 1-11 and 14 above, and further in view of U.S. Patent No. 5,474,641 to Otsuki et al.

22. The prior art discloses the invention substantially as claimed and as described above.

23. However, the prior art fails to teach the wafer being transported to the wetting means antecedently to the ashing means.

24. Otsuki et al. teach using wetting means antecedently to ashing means for the purpose of removing natural oxide prior to ashing processing (column 3, rows 18-45).

25. It would have been obvious to one or ordinary skill in the art at the time the Applicant's invention was made to have transported the substrate to the wetting means antecedently to the ashing means in the prior art in order to remove natural oxide prior to processing as taught by Otsuki et al.

Conclusion

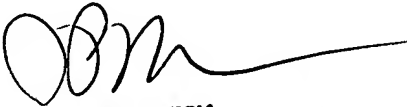
26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9310 for regular communications and 703.872.9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km
May 4, 2003



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